

February 24 to March 2, 2013 (Week 09)

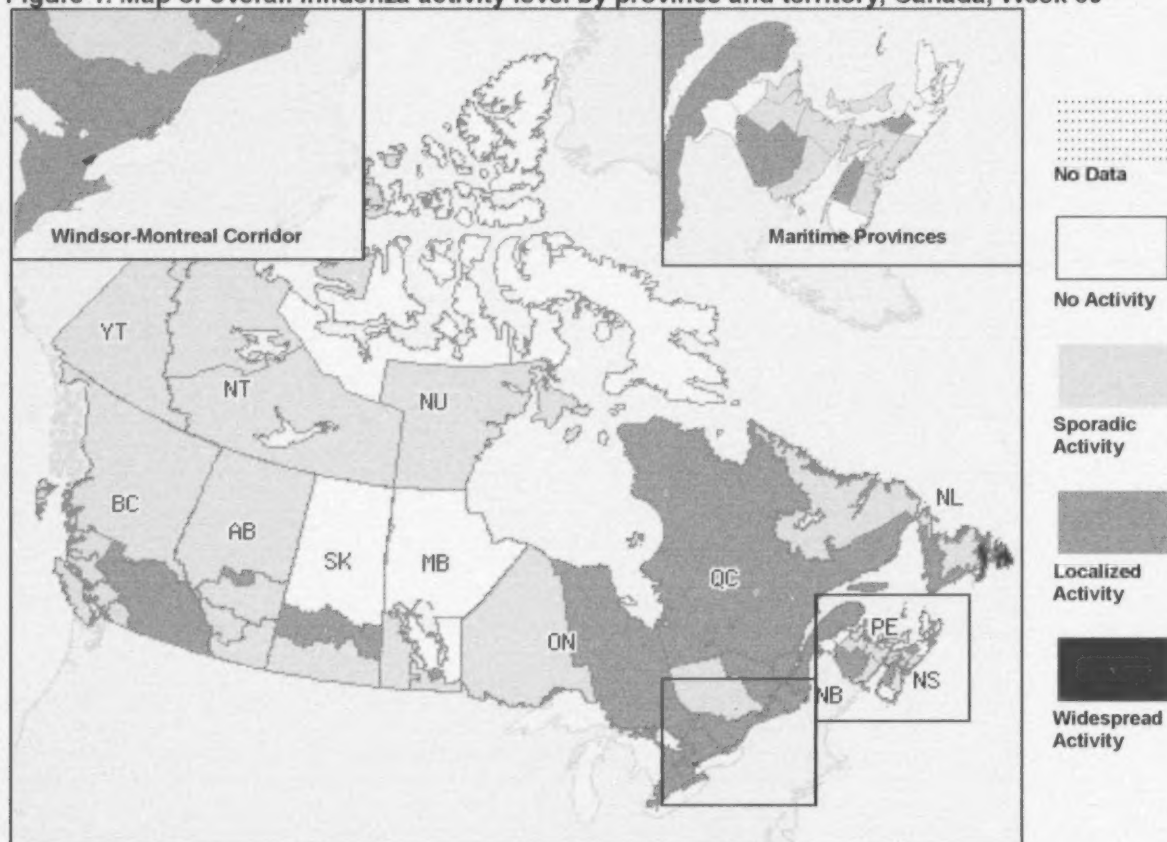
Overall Summary

- Detections of influenza A and B increased slightly, primarily in Eastern Canada. The proportion of positive tests for influenza B has increased in recent weeks.
- The number of paediatric hospitalizations was similar to the previous 2 weeks. In week 09, 50% of cases were associated with influenza B.
- Nationally, the number of regions reporting widespread or localized activity, as well as the ILI consultation rate continued to decline.
- The percentage of laboratory detections positive for RSV and rhinovirus both decreased.

Influenza Activity (geographic spread) and Outbreaks

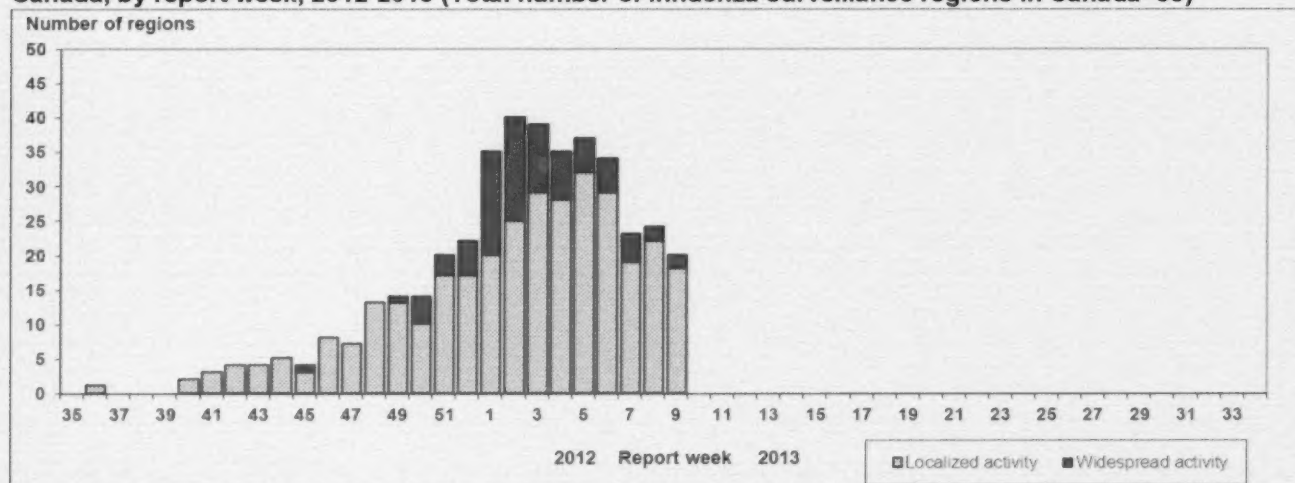
In week 09, 2 regions [in ON(1) and NL(1)] reported widespread activity and 18 regions [in BC(1), AB(1), SK(1), MB(1), ON(5), QC(5), NB(1), NS(2), and NL(1)] reported localized activity. The number of regions reporting widespread or localized activity decreased compared to the previous week and continued to follow the overall decline in influenza/ILI activity from the peak in early January (Figures 1 and 2). Thirty-one new influenza outbreaks were reported: 21 in long-term-care facilities, 3 in hospitals, and 7 in other facilities or communities (Figure 3).

Figure 1. Map of overall Influenza activity level by province and territory, Canada, Week 09



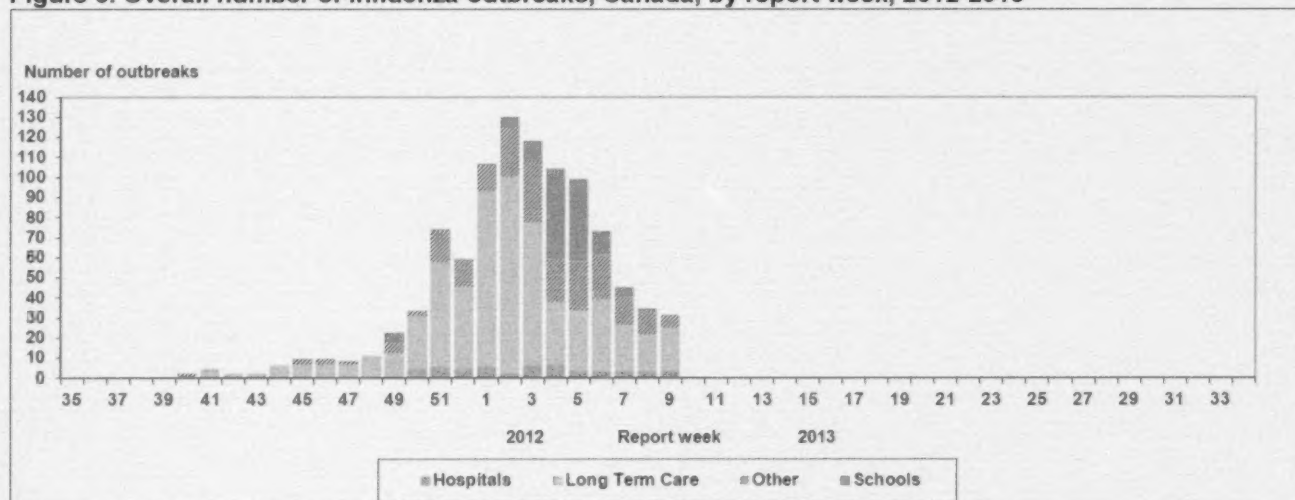
Note: Influenza activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates (see graphs and tables) and reported outbreaks. Please refer to detailed definitions on the last page. For areas where no data is reported, late reports from these provinces and territories will appear on the FluWatch website.

Figure 2. Number of influenza surveillance regions[†] reporting widespread or localized influenza activity, Canada, by report week, 2012-2013 (Total number of influenza surveillance regions in Canada=58)



[†] sub-regions within the province or territory as defined by the provincial/territorial epidemiologist. Graph may change as late returns come in.

Figure 3. Overall number of influenza outbreaks, Canada, by report week, 2012-2013



Influenza and Other Respiratory Virus Detections

The percentage of positive influenza tests increased from 12.1% in week 08 to 14.9% in week 09 (Figure 4). Among the influenza viruses detected in week 09 (n=793), 64.1% were positive for influenza A viruses [of which 20.5% were A(H3), 17.3% were A(H1N1)pdm09, and 62.2% were A(unknown)] (Table 1). The proportion of influenza B detections has increased over the past 6 weeks from 2.1% in week 03 to 35.9% in week 09 (Figure 4). The increase in influenza B detections in week 09 was driven primarily by data from Quebec, where 64.6% of influenza detections were influenza B. The proportion of influenza B was also high in Alberta (52.2%) and Saskatchewan (45.8%) compared to other provinces*. Cumulative influenza virus detections by type/subtype to date are as follows: 94.8% influenza A [35.1% A(H3), 3.6% A(H1N1)pdm09 and 61.3% A(unknown)] and 5.2% influenza B (Table 1).

Detailed information on age and type/subtype has been received for 20,521 cases to date this season (Table 2). The proportion of cases by age group is as follows: 13.3% < 5 years; 8.4% between 5-19 years; 15.3% between 20-44 years; 16.8% between 45-64 years of age; 46.1% ≥ 65 years.

The percentage of tests positive for RSV decreased slightly from 21.3% in week 08 to 17.7% in week 09. The percentage of tests positive for rhinovirus also decreased from 8.7% in week 08 to 6.2% in week 09. The percentage of tests positive decreased slightly for both coronavirus (2.7%) and hMPV (2.6%). The percentage of tests positive increased slightly for both parainfluenza virus (2.1%) and adenovirus (1.5%) (Figure 5)*.

* For more details, see the weekly *Respiratory Virus Detections in Canada Report*.

Table 1. Weekly and Cumulative numbers of positive influenza specimens by Provincial Laboratories, Canada, 2012-2013

Reporting provinces	Weekly (February 24 to March 2, 2013)						Cumulative (August 26, 2012 to March 2, 2013)					
	Influenza A					B	Influenza A					B
	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total
BC	53	0	28	19	6	26	1836	0	1412	186	238	249
AB	33	0	6	21	6	36	2228	0	1722	361	145	281
SK	13	0	0	6	7	11	771	0	467	34	270	104
MB	12	0	0	0	12	5	591	0	78	6	507	44
ON	128	0	32	15	81	56	7904	0	3685	255	3964	289
QC	81	0	0	0	81	148	9572	0	546	26	9000	419
NB	136	0	33	27	76	1	1721	0	723	42	956	5
NS	28	0	0	0	28	1	288	0	165	5	118	3
PE	5	0	5	0	0	0	97	0	66	3	28	1
NL	19	0	0	0	19	1	688	0	152	0	536	5
Canada	508	0	104	88	316	285	25696	0	9016	918	15762	1400

*Unsubtyped: The specimen was typed as influenza A, but no result for subtyping was available. Specimens from NT, YT, and NU are sent to reference laboratories in other provinces. Note: Weekly data is based on week of positive lab detection. Cumulative data includes updates to previous weeks; due to reporting delays, the sum of weekly report totals do not add up to cumulative totals.

Table 2. Weekly & Cumulative numbers of positive influenza specimens by age groups reported through case-based laboratory reporting, Canada, 2012-2013*

Age groups	Weekly (February 24 to March 2, 2013)					Cumulative (Aug. 26, 2012 to March 2, 2013)				
	Influenza A				B	Influenza A				B
	A Total	Pandemic H1N1	A/H3N2	A unsubtype	Total	A Total	Pandemic H1N1	A/H3N2	A unsubtype	Total
<5	28	6	2	20	29	2519	159	836	1524	219
5-19	14	1	0	13	60	1398	57	625	716	331
20-44	25	6	3	16	26	2948	245	1165	1538	197
45-64	24	4	7	13	43	3265	230	1172	1863	175
65+	68	4	14	50	32	9267	79	3511	5677	202
Unknown	0	0	0	0	0	164	18	144	2	0
Total	159	21	26	112	190	19561	788	7453	11320	1124

*Please note that this table reflects the number of specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported. Delays in the reporting of data may cause data to change retrospectively.

Figure 4. Influenza tests reported and percentage of tests positive, Canada, by report week, 2012-2013

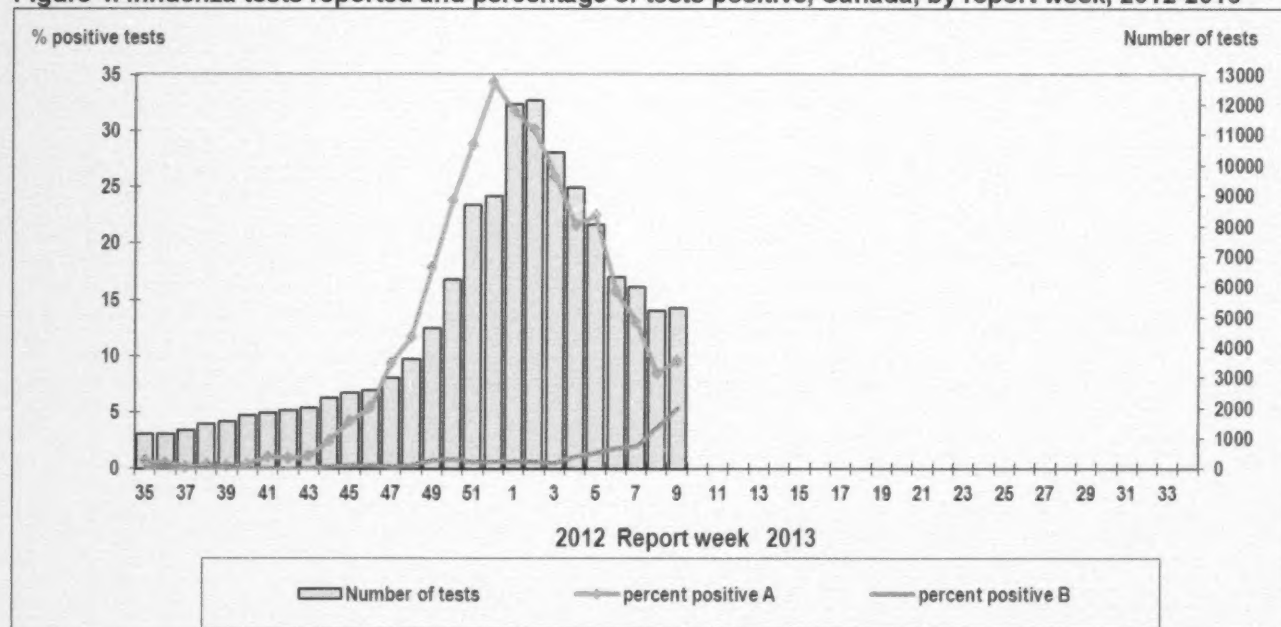
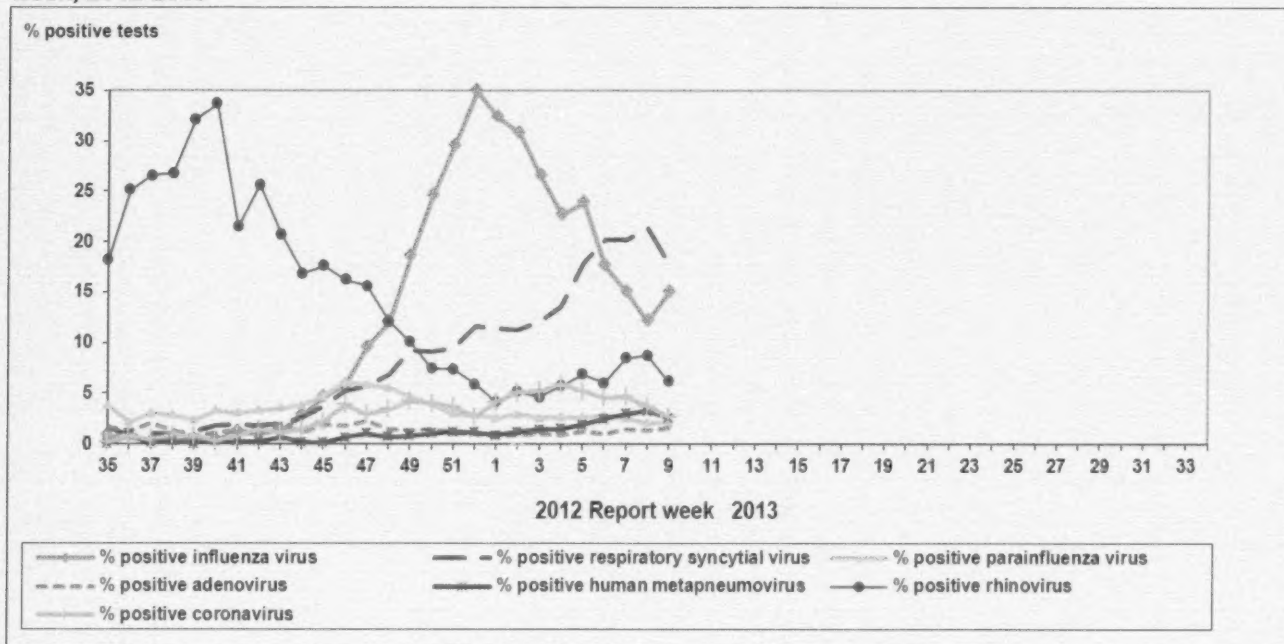


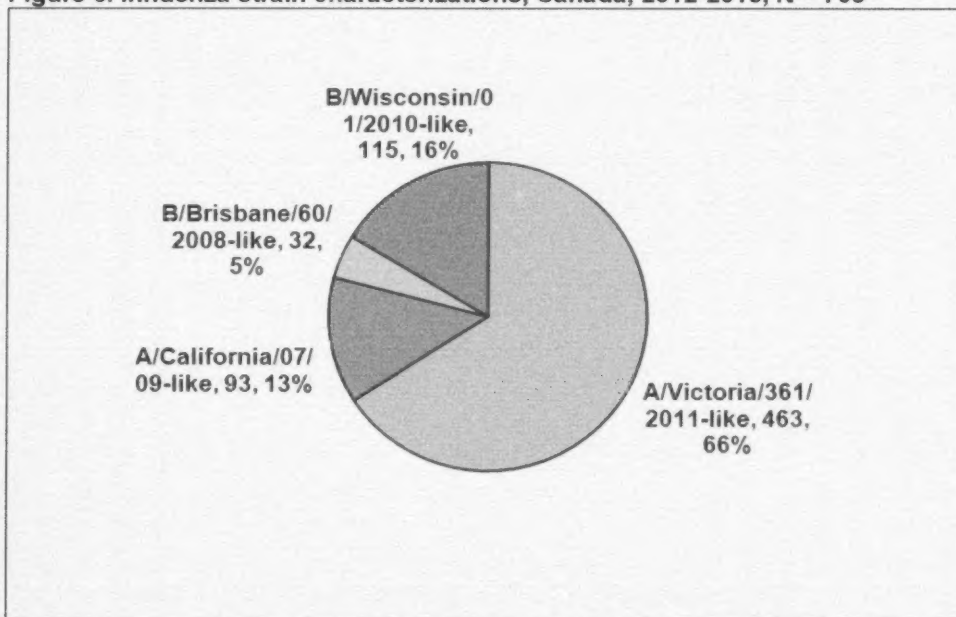
Figure 5. Percent positive influenza tests, compared to other respiratory viruses, Canada, by reporting week, 2012-2013



Influenza Strain Characterizations

During the 2012-13 season, the National Microbiology Laboratory (NML) has antigenically characterized 703 influenza viruses. The 463 influenza A(H3N2) viruses were antigenically similar to the vaccine strain A/Victoria/361/2011 and the 93 A(H1N1)pdm09 viruses were antigenically similar to the vaccine strain A/California/07/09. Among the influenza B viruses, 115 were antigenically similar to the vaccine strain B/Wisconsin/01/2010 (Yamagata lineage) and 32 were similar to B/Brisbane/60/2008 (Victoria lineage; component of the 2011-2012 seasonal influenza vaccine) (Figure 6).

Figure 6. Influenza strain characterizations, Canada, 2012-2013, N = 703



Note: The recommended components for the 2012-2013 Northern Hemisphere influenza vaccine include: an A/Victoria/361/2011 (H3N2)-like virus; an A/California/07/09 (H1N1)pdm09-like virus; and a B/Wisconsin/01/2010-like virus.

Antiviral Resistance

During the 2012-13 season, NML has tested 633 influenza viruses for resistance to oseltamivir, and 632 influenza viruses for resistance to zanamivir. All viruses tested were sensitive to oseltamivir and zanamivir. A total of 819 influenza A viruses were tested for amantadine resistance and all were resistant (Table 3).

Table 3. Antiviral resistance by influenza virus type and subtype, Canada, 2012-2013

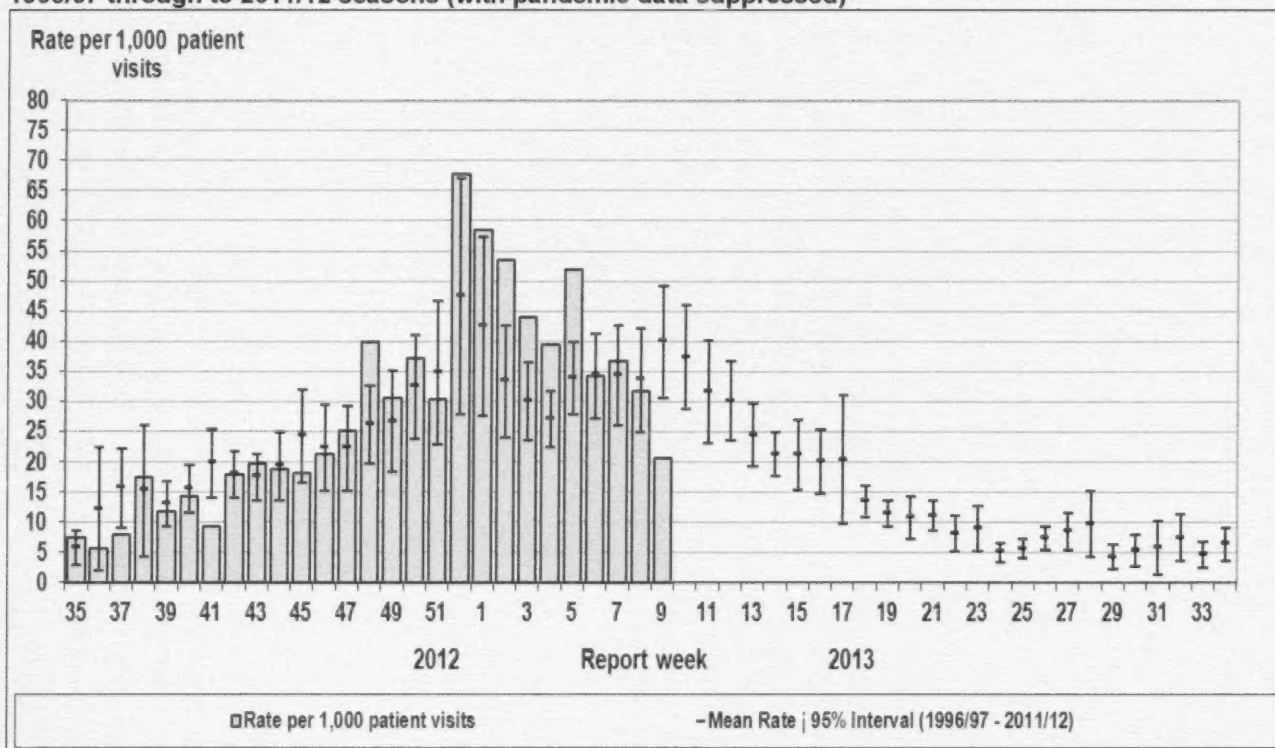
Virus type and subtype	Oseltamivir		Zanamivir		Amantadine	
	# tested	# resistant (%)	# tested	# resistant (%)	# tested	# resistant (%)
A (H3N2)	430	0	430	0	724	724 (100%)
A (H1N1)	85	0	84	0	95	95
B	118	0	118	0	NA*	NA*
TOTAL	633	0	632	0	819	819 (100%)

* NA – not applicable

Influenza-like Illness Consultation Rate

The national influenza-like-illness (ILI) consultation rate decreased from 31.8 ILI consultations per 1,000 patient visits in week 08 to 20.5 in week 09 and is below the expected range for week 09 (Figure 7). In week 09, the highest consultation rate was observed in children <5 years of age (28.2/1,000), followed by children 5-19 years of age (25.3/1,000).

Figure 7. Influenza-like illness (ILI) consultation rates, Canada, by report week, 2012-2013 compared to 1996/97 through to 2011/12 seasons (with pandemic data suppressed)



Note: No data available for mean rate in previous years for weeks 19 to 39 (1996-1997 through 2002-2003 seasons). Delays in the reporting of data may cause data to change retrospectively.

Pharmacy Surveillance

The Canadian antiviral prescription rate increased slightly from 85.7 antiviral prescriptions per 100,000 new prescriptions dispensed in week 08 to 102.5/100,000 in week 09. The antiviral prescription rate decreased for children and adults, and increased slightly among infants, but this rate was the lowest of all age-groups at 32.5/100,000. The highest rate continued to be observed for seniors ≥ 65 years of age, which increased in week 09 to 350.8/100,000.

Note: Pharmacy sales data are provided to the Public Health Agency of Canada by Rx Canada Inc. and sourced from major retail drug chains representing over 3,000 stores nationwide (excluding Nunavut) in 85% of Health Regions. Data provided include the number of new antiviral prescriptions (for Tamiflu and Relenza) and the total number of new prescriptions dispensed by Province/Territory and age group.

Severe Respiratory Illness Surveillance

Paediatric Influenza Hospitalizations and Deaths (IMPACT)

In week 09, 26 new laboratory-confirmed influenza-associated paediatric (≤ 16 years of age) hospitalizations were reported by the Immunization Monitoring Program Active (IMPACT) network, compared to 23 in week 08. Among the cases reported in week 09, 50.0% (13) were identified with influenza B and 50.0% with influenza A [12 A(unsubtyped) and one A(H1N1)pdm09]. More hospitalizations were reported in older age groups compared to the previous week. The age distribution is as follows: 3 cases (11.5%) under 6 months of age, 6 (23.1%) between 6-23 months, 4 (15.4%) 2-4 years of age, 9 (34.6%) 5-9 years of age, and 4 (15.4%) 10-16 years of age. Two ICU admissions were reported during week 09, both with influenza B.

Since the start of the 2012-13 season, a total of 654 influenza-associated paediatric hospitalizations have been reported by the IMPACT network: 589 (90.1%) with influenza A [of which 66 (11.2%) were A(H3N2), 16 (2.7%) were A(H1N1)pdm09 and the remaining 507 were A(unsubtyped)], and 65 (9.9%) with influenza B. The distribution of cases by age group is as follows: 131 (20.0%) < 6 months of age; 150 (22.9%) age 6-23 months; 196 (30.0%) age 2-4 years; 120 (18.3%) age 5-9 years; and 57 (8.7%) age 10-16 years. Fifty-six of the 654 cases (8.6%) were admitted to the ICU. No deaths have been reported to date.

Note: The number of hospitalizations reported through IMPACT represents a subset of all influenza-associated paediatric hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

Adult Influenza Hospitalizations and Deaths (PCIRN)

In week 09, 15 new laboratory-confirmed influenza-associated adult (≥ 16 years of age) hospitalizations were reported by the PHAC/CIHR Influenza Research Network (PCIRN) Serious Outcomes Surveillance (SOS) network, compared to 31 in week 08. The majority of hospitalizations (12) were cases with influenza A(unsubtyped), and three cases were reported with influenza B. The age distribution is as follows: 11 cases were ≥ 65 years of age, 3 cases were 45-64 years of age, and one case was 20-44 years of age. One ICU admission was reported during the current week, an adult ≥ 65 years of age with influenza A(unsubtyped). No deaths were reported this week.

From November 4, 2012 to March 2, 2013, 1,385 influenza-associated adult hospitalizations were reported by the PCIRN-SOS network: 1,309 (94.5%) cases with influenza A [of which 187 were A(H3N2), 9 were A(H1N1)pdm09, and 1,113 were A(unsubtyped)]. Thirty-seven (2.7%) hospitalizations were cases with influenza B; and the type has not been reported for 39 (2.8%) cases. The age distribution of hospitalizations is as follows: 952 (68.7%) were aged ≥ 65 years, 280 (20.2%) were aged 45-64 years, 147 (10.6%) were aged 20-44 years, and 6 (0.4%) were < 20 years of age. There have been 133 hospitalizations for which admission to the ICU was required; the majority (58.6%) of which were adults ≥ 65 years of age. Of the 133 ICU admissions, 44 (33.1%) had at least one co-morbidity, two (1.5%) had no co-morbidities, and 87 had no information to date. A total of 65 deaths have been reported, 11 (16.9%) with influenza A(H3N2), 52 (80.0%) with influenza A(unsubtyped), one (1.5%) with influenza B, and one (1.5%) with influenza untyped. Fifty-four of the 65 deaths (83.1%) were in adults ≥ 65 years of age, 9 (13.8%) were adults 45-64 years of age, and two (3.1%) were 20-44 years of age. Twenty-eight deaths occurred in individuals who had at least one co-morbidity. Detailed clinical information on co-morbidities is not known for the remaining cases.

Note: The number of hospitalizations reported through PCIRN represents a subset of all influenza-associated adult hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

Provincial/Territorial Influenza Hospitalizations and Deaths (Aggregate Surveillance System)

In week 09, 112 laboratory-confirmed influenza-associated hospitalizations were reported from participating provinces and territories*. The majority of cases were influenza A (83.0%), predominantly A(H3). The highest proportion of hospitalisations continued to be adults ≥ 65 years of age (45.5%). Of the 34 cases with available data, 5 were admitted to the Intensive Care Unit (ICU). Eleven deaths were reported: eight were adults ≥ 65 years of age, two adults aged 45-64 years and one child aged 5-14 years. It is important to note that the cause of death does not have to be attributable to influenza, a positive laboratory test is sufficient for reporting. Detailed clinical information (e.g. underlying medical conditions) is not known for these cases.

To date this season 3,739 influenza-associated hospitalizations have been reported. Of these, 96.2% have been influenza A and 3.8% have been influenza B. Age information was available for 3,736 cases; and the age distribution is as follows: 2,093 (56.0%) ≥65 years; 629 (16.8%) 45-64 years; 328 (8.8%) 20-44 years; 34 (0.9%) 15-19; 140 (3.7%) 5-14 years and 512 (13.7%) 0-4 years of age. Among the 988 cases with available data, there have been 153 (15.5%) hospitalisations for which admission to ICU was required; the highest proportions being adults aged 45-64 years of age and ≥65 years of age (37.2% and 34.6% respectively). To date this season, 254 deaths have been reported: 211 (83.1%) were adults ≥65 years of age, 28 (11.0%) were adults 45-64 years; 9 were adults 20-44 years, one child aged 5-14 years and 5 aged 0-4 years. It is important to note that the cause of death does not have to be attributable to influenza, a positive laboratory test is sufficient for reporting. Detailed clinical information (e.g. underlying medical conditions) is not known for these cases.

Note*: The number of new influenza-associated hospitalizations and deaths reported by the Aggregate Surveillance System each week may be overestimated, as it may include retrospective updates to data from Ontario for previous weeks. These data may also include cases reported by the IMPACT and PCIRN networks. Influenza-associated hospitalizations are not reported to PHAC by the following Provinces and Territory: BC, NU, QC, NS, and NB. Only hospitalizations that require intensive medical care are reported by Saskatchewan. ICU admissions are not reported in Ontario.

International Influenza Updates

WHO: No new influenza surveillance update has been published by WHO since 1 March 2013.

[World Health Organization influenza update](#)

United States: During week 09, influenza activity remained high, but decreased in most areas. Nine states reported widespread influenza activity, Puerto Rico and 24 states reported regional influenza activity, and the District of Columbia and 13 states reported local activity. The national percentage of outpatient visits for ILI was 2.3% which is slightly above the national baseline of 2.2%, continuing its decline over the past 6 weeks. Seven of the 10 regions reported ILI at or above region-specific baseline levels; however the highest level of ILI activity was moderate, reported by four states in week 09. The percentage of deaths due to pneumonia and influenza has been above the epidemic threshold since week 01; in week 09 it was 7.7%. The proportion of tests positive for influenza viruses declined to 17.2% in week 09. The number of influenza B detections has been relatively stable over recent weeks, despite a decline in the total number of specimens positive for influenza. Of the positive influenza detections in week 09, 64.2% were positive for influenza B viruses. Of the 171 influenza A viruses for which subtype information was available, 87.1% were A(H3). Since October 1, 2012, the CDC has antigenically characterized 1,472 influenza viruses. Among influenza A(H3N2) viruses, 933 (99.6%) were A/Victoria/361/2011-like, and 4 (0.4%) showed reduced titers to A/Victoria/361/2011 antiserum. Among influenza A(H1N1)pdm09 viruses, 104 (99.0%) were A/California/7/2009-like, and one (1.0%) showed reduced titers to A/California/7/2009-like antiserum. Among influenza B viruses, 308 (71.6%) were B/Wisconsin/01/2010-like belonging to the Yamagata lineage of viruses; and 122 (28.4%) to the B/Victoria lineage. Two (0.6%) oseltamivir-resistant A(H1N1)pdm09 viruses have been reported to date this season. Among the 10,721 influenza-associated hospitalizations reported to date this season, 84.6% were associated with influenza A of which 96.8% were A(H3N2), and 51% were among adults ≥65 years. A total of 87 influenza-associated paediatric deaths have been reported to date this season, 48 with influenza A, 38 with influenza B and one with both influenza A and B.

[Centers for Disease Control and Prevention seasonal influenza report](#)

Europe: No new influenza surveillance update has been published by EuroFlu for week 09.

[EuroFlu weekly electronic bulletin](#)

Human Avian and Swine Influenza Updates

Human Avian Influenza

No new WHO report of Influenza at the Human-Animal Interface has been published since 15 February 2013.

[WHO Influenza at the human-animal interface](#)

Human Swine Influenza

No new human cases of infection with swine influenza viruses or variants were reported in week 09.

[Centers for Disease Control and Prevention seasonal influenza report](#)

FluWatch reports include data and information from the following sources: laboratory reports of positive influenza tests in Canada (National Microbiology Laboratory), sentinel physician reporting of influenza-like illness (ILI), provincial/territorial assessment of influenza activity based on various indicators, including laboratory surveillance, ILI reporting, and outbreaks, influenza-associated paediatric and adult hospitalizations, antiviral sales in Canada, and WHO and other international reports of influenza activity.

Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

ILI definition for the 2012-2013 season

ILI in the general population: Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

Definitions of ILI/Influenza outbreaks for the 2012-2013 season

Schools: Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI. Note: it is recommended that ILI school outbreaks be laboratory confirmed at the beginning of influenza season as it may be the first indication of community transmission in an area.

Hospitals and residential institutions: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case. Institutional outbreaks should be reported within 24 hours of identification. Residential institutions include but not limited to long-term care facilities (LTCF) and prisons.

Workplace: Greater than 10% absenteeism on any day which is most likely due to ILI.

Other settings: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. closed communities.

Influenza Activity Levels Definition for the 2012-2013 season

Influenza Regional Activity levels are defined as:

1 = No activity: no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported

2 = Sporadic: sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†

3 = Localized: (1) evidence of increased ILI* and

(2) lab confirmed influenza detection(s) together with

(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region†**

4 = Widespread: (1) evidence of increased ILI* and

(2) lab confirmed influenza detection(s) together with

(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring **in greater than or equal to 50% of the influenza surveillance region†**

Note: ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls.

* More than just sporadic as determined by the provincial/territorial epidemiologist.

† Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist.

We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.

This report is available on the Public Health Agency website at the following address: <http://www.phac-aspc.gc.ca/fluwatch/index.html>. Ce rapport est disponible dans les deux langues officielles.